

Table 1607.1
Minimum uniformly distributed live loads
and minimum concentrated live
loads

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
1. Apartments (see residential)		
2. Access floor systems		
Office use	50	2,000
Computer use	100	2,000
3. Armories and drill rooms	150	
4. Assembly areas and theaters		
Fixed seats (fastened to floor)	60	3,000
Lobbies	100	
Movable seats	100	
Stages and platforms	125	
Follow spot, projection and control rooms	50	
Catwalks	40	
5. Balconies (exterior)	100	
On one- and two-family residences only, and not exceeding 100 ft. ²	60	
6. Decks	Same as occupancy served	X
7. Bowling alleys	75	—
8. Cornices	60	—
9. Corridors, except as otherwise indicated	100	—
10. Dance halls and ballrooms	100	—
11. Dining rooms and restaurants	100	—

Platforms 100

150

125

SEE 1607.11.2.5

12. Dwellings (see residential)	—	—
13. Elevator machine room grating (on area of 4 in. ²)	—	300
14. Finish light floor plate construction (on area of 1 in. ²)	—	200
15. Fire escapes On single-family dwellings only	100 40	—
16. Garages (passenger cars only) Trucks and buses	50	Note a See Section 1607.6
17. Grandstands (see stadium and arena bleachers)		
18. Gymnasiums, main floors and balconies	100	
19. Handrails, guards and grab bars	See Section 1607.	
20. Hospitals	100 ^c	
Operating rooms, laboratories	60	1,000
Private rooms	40	1,000
Wards	40	1,000
Corridors above first floor	80	1,000
21. Hotels (see residential)		
(22) Libraries		
Reading rooms	60	1,000
Stack rooms	150 ^b	1,000
Corridors above first floor	80	1,000
(23) Manufacturing		
Light	125	2,000
Heavy	250	3,000
(24) Marquees and canopies	75	

22. Laboratories

100

2,000

OCCUPANCY OR USE	UNIFORM (psf)	CONCENTRATED (lbs.)
25. Office buildings File and computer rooms shall be designed for heavier loads based on anticipated occupancy Lobbies and first floor corridors Offices Corridors above first floor	 100 50 80	 2,000 2,000 2,000
26. Penal Institutions Cell blocks Corridors	 40 100	
27. Residential Group R-3 as applicable in Group R-3 Uninhabitable attics without <u>10</u> storage Uninhabitable attics with storage Habitable attics and sleeping areas All other areas except balconies and decks Hotels and multifamily dwellings Private rooms Public rooms and corridors serving them	 20 30 40 40 100	
28. Reviewing stands, grandstands and bleachers	100 ^c	—
29. Roofs	See Section 1607.11	

Corridors above 1st floor 80
serving guest rooms

30. Schools	50	
Classrooms	40	1,000
Corridors above first floor	80	1,000
First floor corridors	100	1,000
31. Scuttles, skylight ribs, and accessible ceilings	—	200
32. Sidewalks, vehicular driveways and yards, subject to trucking	250 ^d	8,000 ^e
33. Skating rinks	100	—
34. Stadiums and arenas		
Bleachers	100 ^c	
Fixed seats (fastened to floor)	60 ^c	
35. Stairs and exits	100	Note f
One- and two-family dwellings	40	
All other	100	
36. Storage warehouses (shall be designed for heavier loads if required for anticipated storage)		
Light	125	
Heavy	250	
37. Stores		
Retail		
First floor	100	
Upper floors	75	
Wholesale, all floors	125	
38. Vehicle barriers	See Section 1607.7	
39. Walkways and elevated platforms (other than exitways)	60	
40. Yards and terraces, pedestrians	100	—

TABLE 9.5.2.2
DESIGN COEFFICIENTS AND FACTORS FOR BASIC SEISMIC-FORCE-RESISTING SYSTEMS

	DETAILING REFERENCE SECTION ^c	RESPONSE MODIFICATION COEFFICIENT, <i>R</i> ^{a,c}	SYSTEM OVERSTRENGTH FACTOR, <i>W</i> _o ^{e,g}	DEFLECTION AMPLIFICATION FACTOR, <i>C</i> _d ^{b,c}	STRUCTURAL SYSTEM LIMITATIONS AND BUILDING HEIGHT (ft) LIMITATIONS BY SEISMIC DESIGN CATEGORY ^c		
					B	C	D ^d
BASIC SEISMIC-FORCE-RESISTING SYSTEM							
1. Bearing Wall Systems							
A. Ordinary steel braced frames in light-gage construction	2211	4	2	3-1/2	NL	NL	65
B. Ordinary steel concentrically braced frames	N/A	4	2	N/A	NP	NP	NP
C. Special reinforced concrete shear walls	1910.2.4	5	2-1/2	5	NL	NL	160
D. Ordinary reinforced concrete shear walls	1910.2.3	4	2-1/2	4	NL	NL	NP
E. Detailed plain concrete shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
F. Ordinary plain concrete shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
G. Special reinforced masonry shear walls	1.13.2.2.5 ^o	5	2-1/2	3-1/2	NL	NL	160
H. Intermediate reinforced masonry shear walls	1.13.2.2.4 ^o	3-1/2	2-1/2	2-1/4	NL	NL	NP
I. Ordinary reinforced masonry shear walls	N/A	2	N/A	N/A	NP	NP	NP
J. Detailed plain masonry shear walls	N/A	2	N/A	N/A	NP	NP	NP
K. Ordinary plain masonry shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
L. Light-framed walls sheathed with wood structural panels rated for shear resistance or steel sheets	2306.4.1/2211	6	3	4	NL	NL	65
M. Light-framed walls with shear panels of all other materials	2306.4.5/2211 ^p	2	2-1/2	2	35	35	NP
N. Light-framed wall systems using flat strap bracing	2306.4/2211	4	2	3-1/2	NL	NL	65
O. Ordinary plain prestressed masonry shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
P. <i>Prestressed masonry shear walls</i>	2106.1.1.2, 1.13.2.2.4 ^o	2-1/2	2-1/2	2-1/2	NL	NP	NP
Q. Special prestressed masonry shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
2. Building Frame Systems							
A. Steel eccentrically braced frames, moment-resisting connections at columns away from links	(15) ^j	8	2	4	NL	NL	160
B. Steel eccentrically braced frames, non-moment-resisting connections at columns away from links	(15) ^j	7	2	4	NL	NL	160
C. Special steel concentrically braced frames	(15) ^j	6	2	5	NL	NL	160
D. Ordinary steel concentrically braced frames	(14) ^j	3-1/4	2	3-1/4	NL	NL	35 ⁿ
E. Special reinforced concrete shear walls	1910.2.4	6	2-1/2	5	NL	NL	160
F. Ordinary reinforced concrete shear walls	1910.2.3	5	2-1/2	4-1/2	NL	NL	NP
G. Detailed plain concrete shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
H. Ordinary plain concrete shear walls	N/A	N/A	N/A	2	NP	NP	NP

(continued)

TABLE 9.5.2.2 -- continued
DESIGN COEFFICIENTS AND FACTORS FOR BASIC SEISMIC-FORCE-RESISTING SYSTEMS

BASIC SEISMIC-FORCE-RESISTING SYSTEM	DETAILING REFERENCE SECTION	RESPONSE MODIFICATION COEFFICIENT, R ^a	SYSTEM OVERSTRENGTH FACTOR, W _o ^g	DEFLECTION AMPLIFICATION FACTOR, C _d ^b	STRUCTURAL SYSTEM LIMITATIONS AND BUILDING HEIGHT (ft) LIMITATIONS BY SEISMIC DESIGN CATEGORY ^c		
					B	C	D ^d
I. Composite eccentrically braced frames	(14) ^k	8	2	4	NL	NL	160
J. Composite concentrically braced frames	(13) ^k	5	2	4-1/2	NL	NL	160
K. Ordinary composite braced frames	(12) ^k	3	2	3	NL	NL	NP
L. Composite steel plate shear walls	(17) ^k	6-1/2	2-1/2	5-1/2	NL	NL	160
M. Special composite reinforced concrete shear walls with steel elements	(16) ^k	6	2-1/2	5	NL	NL	160
N. Ordinary composite reinforced concrete shear walls with steel elements	(15) ^k	5	2-1/2	4-1/2	NL	NL	NP
O. Special reinforced masonry shear walls	1.13.2.2.5°	5-1/2	2-1/2	4	NL	NL	160
P. Intermediate reinforced masonry shear walls	1.13.2.2.4°	4	2-1/2	4	NL	NL	NP
Q. Ordinary reinforced masonry shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
R. Detailed plain masonry shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
S. Ordinary plain masonry shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
T. Light-framed walls sheathed with wood structural panels rated for shear resistance or steel sheets	2306.4.1/2211	6-1/2	2-1/2	4-1/4	NL	NL	65
U. Light-framed walls with shear panels of all other materials	2306.4.5/2211 ^p	2-1/2	2-1/2	2-1/2	35	35	NP
V. Ordinary plain prestressed masonry shear walls	N/A	N/A	N/A	N/A	NP	NP	NP
W. Prestressed masonry shear walls	2106.1.1.2, 1.13.2.2.4°	3	2-1/2	2-1/2	NL	NP	NP
X. Special prestressed masonry shear walls	N/A	N/A	N/A	4	NP	NP	NP
3. Moment-Resisting Frame Systems							
A. Special steel moment frames	(9) ^j	8	3	5-1/2	NL	NL	NL
B. Special steel truss moment frames	(12) ^j	7	3	5-1/2	NL	NL	160
C. Intermediate steel moment frames	(10) ^j	4-1/2	3	4	NL	NL	35 ^h
D. Ordinary steel moment frames	(11) ^j	3-1/2	3	3	NL	NL	NP ^{ai}
E. Special reinforced concrete moment frames	(21.1) ⁱ	8	3	5-1/2	NL	NL	NL
F. Intermediate reinforced concrete moment frames	(21.1) ⁱ	5	3	4-1/2	NL	NL	NP
G. Ordinary reinforced concrete moment frames	N/A	N/A	3	N/A	NP	NP	NP
H. Special composite moment frames	(9) ^k	8	3	5-1/2	NL	NL	NL

(continued)

TABLE 9.5.2.2 -- continued
DESIGN COEFFICIENTS AND FACTORS FOR BASIC SEISMIC-FORCE-RESISTING SYSTEMS

BASIC SEISMIC-FORCE-RESISTING SYSTEM	DETAILING REFERENCE SECTION	RESPONSE MODIFICATION COEFFICIENT, R ^a	SYSTEM OVERSTRENGTH FACTOR, W _o ^g	DEFLECTION AMPLIFICATION FACTOR, C _d ^b	STRUCTURAL SYSTEM LIMITATIONS AND BUILDING HEIGHT (ft) LIMITATIONS BY SEISMIC DESIGN CATEGORY ^c		
					B	C	D ^d
I. Intermediate composite moment frames	(10) ^k	5	3	4-1/2	NL	NL	NP
J. Composite partially restrained moment frames	(8) ^k	6	3	5-1/2	160	160	100
K. Ordinary composite moment frames	(11) ^k	3	3	2-1/2	NL	NP	NP
L. Special masonry moment frames	2106	5-1/2	3	5	NL	NL	160
4. Dual Systems with Special Moment Frames Capable of Resisting at Least 25% of Prescribed Seismic Forces							
A. Steel eccentrically braced frames, moment-resisting connections at columns away from links	(15) ^j	8	2-1/2	4	NL	NL	NL
B. Steel eccentrically braced frames, non-moment-resisting connections at columns away from links	(15) ^j	7	2-1/2	4	NL	NL	NL
C. Special steel concentrically braced frames	(13) ^j	8	2-1/2	6-1/2	NL	NL	NL
D. Special reinforced concrete shear walls	1910.2.4	8	2-1/2	6-1/2	NL	NL	NL
E. Ordinary reinforced concrete shear walls	1910.2.3	7	2-1/2	6	NL	NL	NP
F. Composite eccentrically braced frames	(14) ^k	8	2-1/2	4	NL	NL	NL
G. Composite concentrically braced frames	(13) ^k	6	2-1/2	5	NL	NL	NL
H. Composite steel plate shear walls	(17) ^k	8	2-1/2	6-1/2	NL	NL	NL
I. Special composite reinforced concrete shear walls with steel elements	(16) ^k	8	2-1/2	6-1/2	NL	NL	NL
J. Ordinary composite reinforced concrete shear walls with steel elements	(15) ^k	7	2-1/2	6	NL	NL	NP
K. Special reinforced masonry shear walls	1.13.2.2.5 ^o	7	3	6-1/2	NL	NL	NL
L. Intermediate reinforced masonry shear walls	1.13.2.2.4 ^o	6	3	5	NL	NL	NP
M. Ordinary steel concentrically braced frames	N/A	6	N/A	N/A	NP	NP	NP
5. Dual Systems with Intermediate Moment Frames Capable of Resisting at Least 25% of Prescribed Seismic Forces ^m							
A. Special steel concentrically braced frames	(13) ^j	4-1/2	2-1/2	4-1/2	NL	NL	35 ^h
B. Special reinforced concrete shear walls	1910.2.4	6	2-1/2	5	NL	NL	160
C. Ordinary reinforced concrete shear walls	1910.2.3	5-1/2	2-1/2	4-1/2	NL	NL	NP
D. Ordinary reinforced masonry shear walls	N/A	3	N/A	N/A	NP	NP	NP
E. Intermediate reinforced masonry shear walls	1.13.2.2.4 ^o	5	3	4-1/2	NL	NL	NP
F. Composite concentrically braced frames	(13) ^k	5	2-1/2	4-1/2	NL	NL	160
G. Ordinary composite braced frames	(12) ^k	4	2-1/2	3	NL	NL	NP
H. Ordinary composite reinforced concrete shear walls with steel elements	(15) ^k	5	3	4-1/2	NL	NL	NP

(continued)

TABLE 9.5.2.2 -- continued
DESIGN COEFFICIENTS AND FACTORS FOR BASIC SEISMIC-FORCE-RESISTING SYSTEMS

	DETAILING REFERENCE SECTION	RESPONSE MODIFICATION COEFFICIENT, R^a	SYSTEM OVERSTRENGTH FACTOR, W_o^g	DEFLECTION AMPLIFICATION FACTOR, C_d^b	STRUCTURAL SYSTEM LIMITATIONS AND BUILDING HEIGHT (ft) LIMITATIONS BY SEISMIC DESIGN CATEGORY ^c		
					B	C	D ^d
BASIC SEISMIC-FORCE-RESISTING SYSTEM							
I. Ordinary steel concentrically braced frames	N/A	5	N/A	N/A	NP	NP	NP
6. Shear Wall-Frame Interactive System with Ordinary Reinforced Concrete Moment Frames and Ordinary Reinforced Concrete Shear Walls							
7. Inverted Pendulum Systems	N/A	N/A	N/A	5	NP	NP	NP
A. Cantilevered column systems		2-1/2	2	2-1/2	NL	NL	35
B. Special steel moment frames	(9) ^j	2-1/2	2	2-1/2	NL	NL	NL
C. Ordinary steel moment frames	(11) ^j	1-1/4	2	2-1/2	NL	NL	NP
D. Special reinforced concrete moment frames	21.1 ⁱ	2-1/2	2	1-1/4	NL	NL	NL
8. Structural Steel Systems Not Specifically Detailed For Seismic Resistance	AISC-335 AISC-LRFD AISI AISC-HSS	3	3	3	100	65	NP

For SI: 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kN/m².

a. Response modification coefficient, R , for use throughout the standard. Note R reduces forces to a strength level, not an allowable stress level.

b. Deflection amplification factor, C_d , for use in Sections 9.5.3.7.1 and 9.5.3.7.2.

c. N/A = Not Applicable in Massachusetts; NL = Not Limited; NP = Not Permitted in Massachusetts. For metric units use 30 m for 100 ft and use 50 m for 160 ft. Heights are measured from the base of the structure.

d. See Section 9.5.2.2.4.1 for a description of building systems limited to buildings with a height of 240 ft (75 m) or less.

e. *RESERVED*

f. Ordinary moment frame is permitted to be used in lieu of intermediate moment frames in Seismic Design Categories B and C.

g. The tabulated value of overstrength factor, W_o , may be reduced by subtracting $1/2$ for structures with flexible diaphragms, but shall not be taken as less than 2.0 for any structure.

h. Steel ordinary moment frames and intermediate moment frames are permitted in single story buildings up to a height of 60 ft, when the moment joints of field connections are constructed and bolted end plates and the dead load of the roof does not exceed 15 psf. The dead weight of the portion of walls more than 35 feet above the base shall not exceed 15 psf.

i. Steel ordinary moment frames are permitted in buildings up to a height of 35 feet, where the dead load of the walls, floors and roof does not exceed 15 psf.

j. AISC 341 Seismic Part I or Part III, Section number.

k. AISC 341 Seismic Part II, Section number.

l. ACI 318, Section number.

m. Steel intermediate moment resisting frames as part of a dual system are not permitted in Seismic Design Category D.

n. Steel ordinary concentrically braced frames are permitted in penthouse structures and in single-story buildings up to a height of 60 feet when the dead load of the roof does not exceed 15 pounds per square foot.

o. ACI 530/ASCE 5/TMS 402 section number

p. Light-framed walls with shear panels of all other materials are permitted only at exterior walls and at fire-rated interior walls.